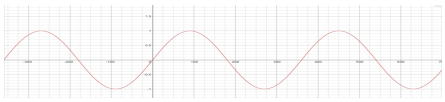
Graphing SINE with all transformations

Warm Up

Draw an accurate sketch of the sine function

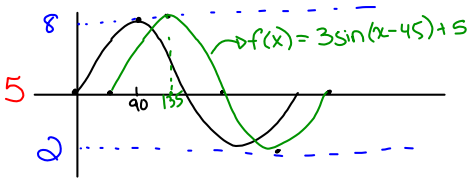


Today, we are going to try graphing all transformations together and looking at function notation.

Graph f(x) = 3sin(x-45)+5

What transformations do we have to perform?

Transformation	What does it do to the graph
Vertical Stretch bafo 3	makes amplitude 3 (taller)
Horizontal translation bafo 45° RIGHT	pushes every point 45° RIGHT
Vertical Translation UP 5	moves every point up 5. ∴ EofA would be y=5

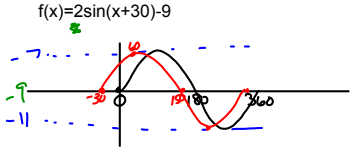


In mapping notation, how would you write all the transformations?

y=3sin(x-45)+5 f(x) = 3sin(x-45)+5 Mapping $f(x) \to 3f(x-45)+5$

Example 2

f(x)=2sin(x+30)-9



Key Features:

Amplitude 2

Max -7

Min -11

Period 360

Domain $\{x \in \mathbb{R}\}$

Range $\{-11 \le y \le -7, y \in \mathbb{R}\}$

EofA: y = -9

CLASS WORK

Graph the following and list the key features

1) f(x) = 3sin(x-60)+8

2) f(x) → 2f(x+45)-7